DOCUMENT RESUME

ED 255 141 HE 018 196

AUTHOR McKeachie, Wilbert J.; And Others
TITLE Teaching Learning Strategies.
SPONS AGENCY National Science Foundation, Washington, D.C.
PUB DATE Aug 84
GRANT NSF-G-SER-8160978
NOTE 17p.; Paper presented at the Annual Meeting of the American Psychological Association (92nd, Toronto, Canada, August 24-28, 1984).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Academic Achievement; *Cognitive Processes; *College Freshmen; College Instruction; Course Evaluation; *Epistemology; Followup Studies; Higher Education; Introductory Courses; *Learning Strategies; *Psychology; *Study Habits

ABSTRACT

An evaluation was conducted of an introductory cognitive psychology course that focused on both the concepts of cognitive psychology and their application to learning strategies. A special target group was the freshman student. Instruction covered cognitive and motivational theory and reasons why learning strategies work. Students practiced the learning strategies and were made aware of the possibility of choosing a strategy, rather than studying in the same way in every situation. The course involved two lectures a week and a laboratory that allowed: practice, discussion of lectures and text material, and teamwork in the development and evaluation of a learning strategy. Student evaluation included self-report measures administered at the beginning and end of the semester, grade point average in subsequent courses, and student comments in the year following the course. In addition to substantial success in students' self-reported study habits, modest success in student achievement in later semesters was found. Improvement was found on measures of learning strategies, anxiety, and need for cognition. An attribute-treatment interaction revealed that students high in anxiety were particularly helped by the course. (SW)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED255141

Teaching Learning Strategies

Wilbert J. McKeachie, Paul R. Pintrich and Yi-Guang Lin

The University of Michigan

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.

Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Wilbert J. McKeachie

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

AE018196

Running head: Teaching Learning Strategies

Abstract

Contemporary teaching is concerned not only with imparting knowledge but with developing skills and strategies for further learning. This paper describes the evaluation of an introductory cognitive psychology course intended to teach both the concepts of cognitive psychology and their application to learning strategies. The evaluation revealed substantial success in affecting students' self-reported study habits and modest success in affecting achievement in later semesters. An attribute-treatment interaction revealed that students high in anxiety were particularly helped by the course.

Teaching Learning Strategies

This article describes our course "Learning to Learn" and our evaluation of its effects. Part of my motivation for developing the course was an increasing awareness that an important goal of higher education is to help our students become better life-long learners. This not only involves providing a background of knowledge, but also developing both motivation for continued learning and the skills or strategies which will enable students to be more effective in continued learning. My belief that a course in learning strategies would be successful was strengthened by our recognition that laboratory work in cognitive psychology was coming closer and closer to practical problems of teaching and learning in colleges and universities. We were also encouraged by early reports of success of similar courses offered by Claire Weinstein, Donald Dansereau, Barbara McCombs, and Don Norman.

After some 35 years of experience in teaching undergraduates, particularly at the introductory level, it was clear to me that many of the problems students have in learning psychology courses were not so much problems of lack of effort as they were problems of the lack of skills in reading, learning from lectures, and learning from other students in discussion classes and in interactions outside class. All through school, our students have come through a system in which the teacher controls the content of classes, assignments are made for homework, and comprehension is monitored by the teacher. Students come through this system into a university setting in which they must find and select appropriate courses, evaluate their own progress in

relatively infrequent assessments of achievement, and maintain motivation over relatively long stretches. The skills involved in learning are seldom taught explicitly by teachers even though teachers have ordered students to carry out activities which incorporate many of the strategies that are useful in learning. These skills have typically not been discussed or made the direct focus of instruction. Thus, although many students pick up effective skills incidentally, many do not.

A second motivation for the course comes from my longstanding interest in the problems of the student with high levels of anxiety about achievement and testing. I recently reviewed the thirty-eight years of research we have carried out on these problems of anxiety and the classroom (McKeachie, 1984). In an earlier study we demonstrated that highly-anxious students have difficulty, not only because their anxiety during the examinations results in poor test scores, but also because their study habits emphasize excessive use of repetition and rote memorization rather than more effective strategies of learning (Benjamin, McKeachie, Lin, & Holinger, 1981).

A third source of motivation for the course was concern about two groups of students. One such group was minority students. Although Michigan has a higher percentage of black students than most other Big Ten universities, our recruitment and retention rates are less than we would like. Many of these students, I believe, could be more successful with a better repertoire of learning strategies.

A second group I hoped to help is composed of athletes, who are recruited for football, basketball, and other sports and promised, in addition to the standard financial aid package, a good education.

Many of these students lack confidence and academic skills. I believe that major college athletics exploits such students if they do not get a good education. Obtaining a college degree does not necessarily mean that one has gotten a good college education.

Description of the Course, "Learning to Learn"

Our course was aimed at freshmen. Our goals were to teach cognitive psychology and to help students develop more effective learning strategies, to practice them enough that they develop some skill or at least the first stage of automatization, and to teach them in a way that students became aware of the possibility of choice of strategy rather than automatically studying in the same way in every situation. Moreover, our hope was that by emphasizing the concept of learning strategies, students would be less inclined to attribute failures to lack of a stable characteristic of ability and rather to attribute failure to inappropriate choice of strategy or to inadequate effort.

The course was designed to include both practice on learning strategies and the cognitive theory which explains why the strategies work. I hoped that as contrasted with a study habits' course in which the emphasis was primarily upon a prescribed routine of study, the development of understanding of cognitive and motivational theory would enable students to modify and use their strategies more effectively. In addition, this theoretical knowledge would help the students understand why the strategies work and make them more likely to use them. Paris et al. (1983) term this "conditional knowledge," pointing out that students need to know when and why to use strategies if they are to be strategic learners. We also hoped that the attempt

to apply the concepts would facilitate the learning of cognitive psychology. Thus both the objectives of a cognitive psychology course and the objectives of study skills' programs would be better achieved through their combination into a single course.

The course carried 3 hours of course credit. It consisted of two one-hour lectures a week, which I gave, and a three-hour "laboratory" meeting in groups of 20 or fewer, taught by graduate students. In the laboratories students practiced learning strategies, discussed the lectures and textbook, and carried out team research projects involving development and evaluation of a learning strategy. We used a textbook in cognitive psychology intended for more advanced students (Bransford, 1979). Since the book was a relatively advanced one, I spent more time in lectures reviewing and elaborating the book than I typically would using a textbook more appropriate for the students' background.

Measures

One source of evaluative data was a group of self-report measures, administered both at the beginning of the semester and at the end of the semester. These measures included the Learning and Study Strategies Inventory (LASSI) (Weinstein, 1982), a five-item test anxiety scale, a measure of need for Cognition (Cacioppo & Petty, 1982), and a measure of attributions and expectancies for success and failure. A second outcome measure was grade point average in courses following the Learning to Learn course. We also interviewed a small sample of the students during the year following the course to give us a better qualitative understanding of the changes reported on the questionnaire.

Procedures

Although it was not possible to carry out an experiment in which students were randomly assigned to our course, we were able to obtain certain comparison groups. One such group consisted of students in other freshman psychology courses. A second comparison group consisted of students matched to our students in aptitude scores who had entered the university the year before our course was offered. The first group took the same measures of study skills and motivation as our "Learning to Learn" students. For the second comparison group we could use only grade-point averages as comparative measures.

Results

The changes on our measures of learning strategies, anxiety, and need for cognition were positive, and as indicated in Table 1 changes of the students in the "Learning to Learn" course exceeded those of students in the comparison psychology courses.

Insert Table 1 about here

In our interviews, we found that students particularly reported that they had made use of the strategies included in our section on test-taking, a result that was reflected in significant changes on the test-taking scale of the LASSI.

With self-report measures one is always concerned about whether the changes reported are real or simply represent attempts to give the "desired" answers. We are somewhat reassured in this instance by the fact that there was a positive correlation between scores on the LASSI posttest and later grade point average (.38, $p<.001$).

The most critical measure of the transfer of learning strategies beyond our course is its impact upon grades in other courses. The

results here are positive but not overwhelming. All of the eight comparisons between our "Learning to Learn" students and the students in other courses favored "Learning to Learn," but the differences are small--probably no greater than those produced by conventional study skills training (see Table 2).

Insert Table 2 about here

As indicated earlier we were particularly interested to see the effect of our course upon students high in anxiety. The results here were gratifying. Figure 1 shows that there was a significant interaction between anxiety and our treatment, the "Learning to Learn" course. As hypothesized, teaching anxious students better learning strategies did results in improved achievement relative to other students.

Insert Figure 1 about here

Conclusions

I begin my second year of teaching the course (having had a sabbatical in the interim) with the firm conviction that learning strategies can be taught. Moreover, my concern about the possibility that they might not generalize to other courses seems not to have been borne out. Finally, I believe that I have a deeper understanding of some of the problems in teaching such a course.

I've been particularly concerned about those students who obtained Ds and Es in my course, typically students who came to class infrequently or who simply lacked the basic skills needed to read and understand the textbook or to interpret my lectures in ways that would enable them to pass our tests or to write satisfactory papers. I now

believe that for some students being advised by academic counselors to take a course like mine is in itself a confirmation of fears about low ability and that poor attendance may simply be the result of a coping strategy attempting to minimize the sense that one cannot adequately handle academics at a university. If one were to make a great deal of effort to do well in Psychology 100 and still did poorly, this might be an even more crushing blow to one's sense of self-efficacy than failure which can be attributed to not having made an effort at all.

I think it is also possible that in some instances, metacognition, thinking about thinking, may actually interfere with effective performance. After all, if one is making decisions about learning strategies and is conscious that one is trying different strategies, a certain amount of intellectual capacity must be taken up with this thinking and decision-making, which may simply result in overloading or distracting the student from the business of studying.

Probably not all courses benefit from the strategies emphasized in this course; e.g., elaboration, questioning, looking for main points, self-monitoring, etc. Sandra Castenada of the National Autonomous University of Mexico reported at the International Congress of Psychology in Acapulco that in a beginning chemistry course, the best learning strategy appeared to be one of repetition and memorization. This may well be the case for a number of university courses. Even though we teach students to think of our techniques as strategies and of repetition and memorization as an alternative strategy which may be useful in some cases, I certainly emphasize elaboration as generally being better, and this may interfere with

achievement in courses for which the student's traditional study methods are appropriate.

I am also concerned about the impact of our course upon intrinsic motivation for learning. I began with the supposition that we could develop motivation to learn--that as students develop skills and strategies for learning their sense of self-efficacy would increase and with this greater sense of personal control, motivation would be enhanced. Nonetheless, it may well be that by our heavy emphasis upon developing learning strategies for this course and for other courses, we are being trapped into an emphasis upon the instrumental value of these techniques for gaining good grades. In doing so we may actually inhibit our goal of developing a sense of curiosity and interest in learning for its own sake. During the coming year we will be using a reading log in which students are encouraged to do free reading, non-graded, and emphasizing reading following the student's own interests as related to the course. We hope this will enhance intrinsic motivation for learning about learning.

References

Benjamin, M., McKeachie, W. J., Lin, Y-G., & Holinger, D. F. (1981). Test anxiety: Deficits in information processing. Journal of Educational Psychology, 73, 816-824.

Bransford, J. D. (1979). Human cognition. Belmont, CA: Wadsworth.

Cacioppo, J. T., & Petty, R. E. (1982). The need for cognition. Journal of Personality and Social Psychology, 42, 116-131.

McKeachie, W. J. (1984). Does anxiety disrupt information processing or does poor information processing lead to anxiety? International Review of Applied Psychology, 33, 187-203.

Paris, S. G., Lipson, M. Y., & Wixson, K. K. (1983). Becoming a strategic reader. Contemporary Educational Psychology, 8, 293-316.

Weinstein, C. E. (1982). Learning and study strategies inventory. Unpublished manuscript. University of Texas at Austin.

Author Notes

This article is based on an invited address by Wilbert J. McKeachie for the Division of Educational Psychology, American Psychological Association meetings, Toronto, Canada, August, 1984 and on an address given at the XXIII International Congress of Psychology, Acapulco, Mexico, September, 1984. The research was sponsored by the National Science Foundation Grant G-SER-8160978. The initial results of the study were presented by Paul R. Pintrich at the 1983 APA meetings. Where first person singular pronouns are used, they refer to the senior author.

The authors express their appreciation to Richard Catrambone, Chip Davis, April Ferguson, Mauricio Gaborit, Julie Norem, Johnathan Shedler, Walter Windisch, and Alice Yip who taught sections of "Learning to Learn," and to Carolyn Burns, Mary Eaton, Ellen Feig, Fred Kellum, Pat O'Brien, and Stuart Segal who taught sections of the introductory courses used as comparison groups.

Table 1

Changes in Scores

	Learning to Learn	Introductory Psychology Students
LASSI Total[1]	.13*	-.05
Locus of Control[2]	-.05	.01
Expectancy of Success	.08*	-.10
Need for Cognition	.05	-.06
Anxiety	-.08	.06

[1]The LASSI indicates several scores for Information Processing, Study Skills, Self-Testing, Scheduling, Active Reading, Concentration, Test-Taking, Motivation, Note-Taking, Selecting Main Idea, School Attitude, and Study Environment.

[2]Negative changes in Locus of Control are toward more internal.

*Significantly different between groups.

Table 2

Treatment Effect of Learning to Learn upon Grades

	Fall Term								
	Learning to Learn			Comparison '81			Comparison '82		
	M	Change from GPA 1	SD	M	Change from GPA 1	SD	M	Change from GPA 1	SD
GPA 1	2.65	--	0.64	2.76	--	0.52	2.95	--	0.58
GPA 2	2.77	.12	0.52	2.73	-.03	0.59	2.98	.03	0.50
GPA 3	2.75	.10	0.48	2.79	.03	0.52	3.01	.06	0.52
	Winter Term								
GPA 1	2.74	--	0.81				2.89	--	0.55
GPA 2	2.72	-.02	0.53				2.82	-.07	0.50

Note. GPA 1 is the grade-point average for the semester students were taking Learning to Learn (for Comparison '81, the comparable term). GPA 2 is the following semester. GPA 3 is the semester following GPA 2.

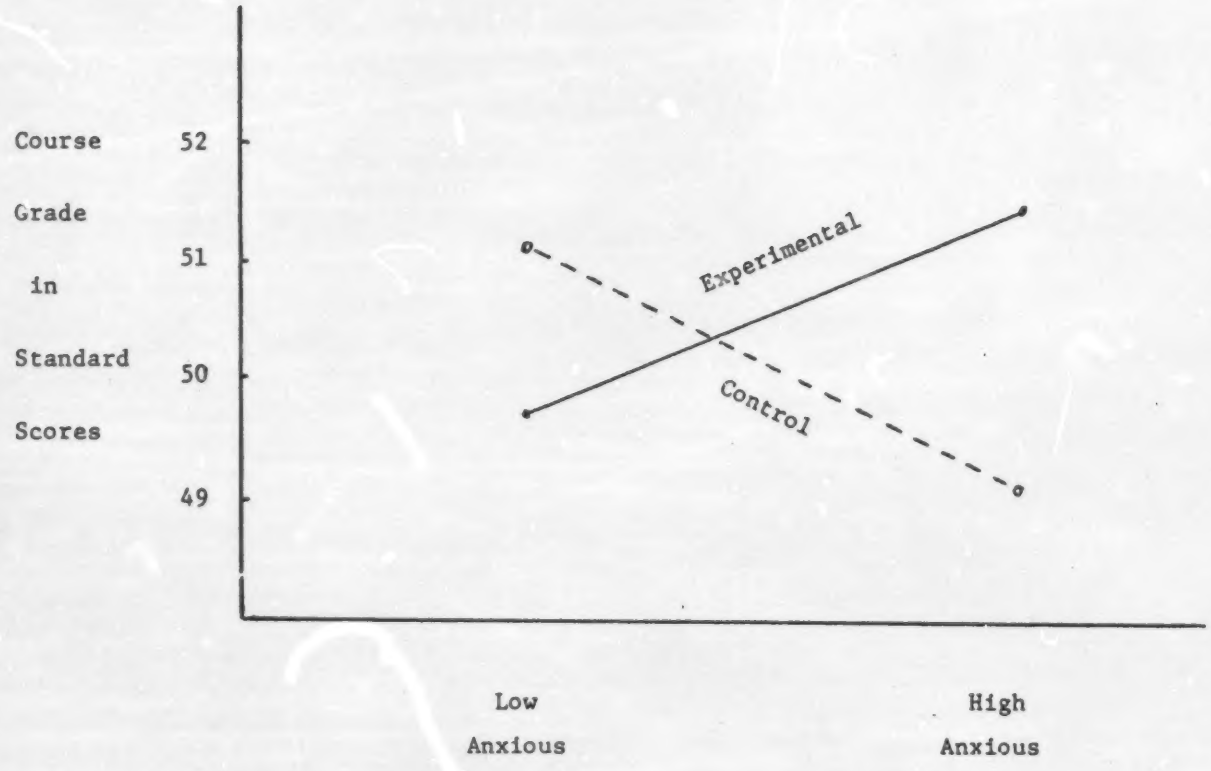

Figure 1. Anxiety by Treatment Interaction for Course Grade.

BEST COPY AVAILABLE